

Another “R”: Repair!

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3rd - 5th grade

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Teacher Lesson Plan

Grades 3 - 5
Time: 30 minutes - 1 hour



Overview

Waste is generated at an increasing rate every year. On average, one person living in America (that includes us!) makes about 42 pounds of electronic waste per year. Sadly, most of that will likely end up in landfills.

From electronics to small appliances, furniture to clothing, we want to remind students that “broken” doesn’t have to mean “trash”. We can all help conserve our natural resources by trying to fix our broken items instead of throwing them away. We know the 4R’s: Reduce, Reuse, Recycle, and Rot (Compost). Now, we want to introduce one more important “R”: Repair!

★ Purpose & Learning Objectives

This activity gives students the opportunity to practice observation skills by noting broken items in their home. They will be prompted to reflect on and discuss the theme of “Repair” using cause-and-effect reasoning. Students will also engage in creative problem-solving by brainstorming possible solutions and sketching.

Driving Question

How does repairing our broken goods benefit the environment?

Materials

Students need a notepad and pencil to record their broken items if they are unable to print the following worksheets. Internet access will be helpful for the lesson extension where students can directly input their data. Assistance from an adult is strongly recommended, but not required.

Key Terms

REPAIR To fix or mend something that is broken.

MATERIAL What things are made of; the elements, substance, or parts of which something is made or can be made with.

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Teacher Lesson Plan

Standards & Topics Connections

One Planet Living Topic

Zero Waste,
Products &
Materials
(Consumption)

Standards: NGSS, HSS, Common Core Crosswalk of Standards

Problem Exploration
NGSS: 3-5-ETS1-1, 3-5-ETS1-2, 4-ESS3-1
HSS: Economics of the Local Region:
Choices, Costs, and Human Capital
Common Core: 3.NF.1, 3.MD.3, 3.MD.4, 4.NBT.4,
4.NBT.5, 4.NF.3,

Environmental Principles and Concepts (EP&Cs)

Principals 1, 2,
3, and 5

Adaptations & Extensions

This activity can be expanded to analyze data as a class and include multiple students. Each student can input their findings into a spreadsheet, logging information such as number of broken items, item type(s), and brand(s). This data can then be graphed for further analysis and/or mathematical calculations. Use “Lesson Repair Template” as an example.

Alternatively, teachers may facilitate a discussion among students and encourage them to share their findings and compare what they found. This could become an extended exercise by keeping a posted log in the classroom (or online) of broken items at home and/or school.

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Student Worksheet



30 min.- 1 hour

Introduction

You've probably heard about the 4 R's already: Reduce, Reuse, Recycle, Rot. These are great ways to think about waste, but there is another special "R" that is important, too. Can you guess what it is? You're right! It's Repair!

What does repair mean? Have you ever had a toy that stopped working? Or noticed a rip or hole in a pair of pants? Many people think that once something is broken it's time to throw away, but there is probably a way to fix it or repair it first!

Repair is important because when you repair an item, you make it last longer. When we throw an item in the garbage, it usually goes straight to the landfill and stays there forever. When you repair something that was broken, you can extend its useful life - which means you are keeping it out of the landfill. Repairing an item also means you won't have to buy a new one, which saves valuable resources, energy, and money. You might even learn handy new repair tricks!



A Few Tips from the Fix-it Fairies!

Clothing can easily be fixed by sewing up small holes or putting patches over large rips. Even a broken backpack strap can be repaired with a needle and thread!

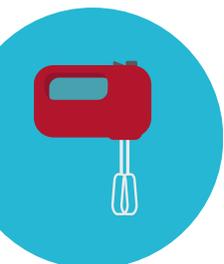
Has the rubber or plastic covering on a cord worn away or broken so that the metal wires are exposed? Use some electrical tape to carefully cover up the wire - no need to buy a new one.

A zipper that opens behind the zipper slider is an easy fix. Use locking pliers to squeeze the top and bottom plates of the zipper slider closer together - just a little at a time. Repeat slowly until the zipper starts closing behind the zipper pull.

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Student Worksheet

Materials



All you will need is a pencil and creativity. You can either print the table from this worksheet, or write your answers on a separate sheet of paper and type it in later. Try using scratch paper if you have some available.

Instructions

STEP 1

Walk through all the rooms in your home. In each room, look for items that are broken in any way. This could be items like appliances, electronics, clothing, etc. Ask an adult to help you if you can't reach something or if you aren't sure what something is.

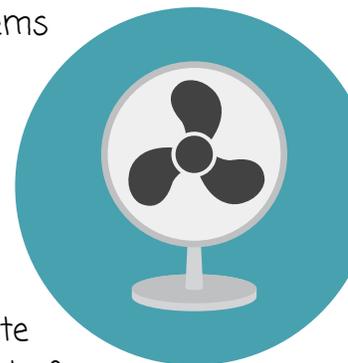
STEP 2

When you find an item that could be repaired, document the details. Carefully fill out the table on the next page of this worksheet, or write down the answers to these questions if you're using a separate sheet of paper:

- What is today's date?
- What is the item that is broken? Write the name or draw the item
- Where was it found? Example: kitchen cabinet
- What material is this item made of? Example: glass and plastic
- What is it (intended to be) used for?
- How often would we use it if it were working? Every day? Once a year?

STEP 3

Repeat Steps 1 and 2 until you think you've found all of the broken items in your home. You can also check your back or front yard, with adult permission.



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Repair Journal

Date	What item is broken? Write or draw	Where was it found?	What material is this item made of? How often do we use it? Write a sentence.
Example: 9/1/20	Example: Clothes iron 	Example: Laundry room shelf	Example: The iron is made of plastic and metal. We use it 3 times a week.

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Repair Journal



A Public Agency

Date	What item is broken? Write or draw	Where was it found?	What material is this item made of? How often do we use it? Write a sentence.

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Student Worksheet



Reflection Questions

1. Find the sum of all of the broken items. Then, multiply the sum by the number of classmates you have. How many total broken items might belong to you and all of your classmates combined?

2. Graph the number of items by material type. What material breaks the easiest? What material does not seem to break as easily? If an item is made of more than 1 material, pick the material that makes up the majority of the item.



3. Choose one item and guess how it might need to be fixed. Write your idea below: Then, with the help of an adult, look up a video on how to fix the item. Was your idea similar? What were the similarities? What were the differences?

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Student Worksheet



Reflection Questions (continued)

4 How do you think this item could have been made differently to prevent it from breaking in the first place?

5. What do you think about when considering whether or not to fix a broken item vs. replace it? Cost? Convenience? Time?

With the permission of an adult, report your broken items here:
<http://bit.ly/brokenitemreport>. If you can, hold on to these items for the next Fixit Clinic in your neighborhood!

If your teacher is collecting data from your class, input your findings into to the shared spreadsheet.

